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NEWS ON 4

MICROSOFT - THE MOVIE?

Universal Studios have leaked plans to make a movie based on computer software giants Microsoft.

Universal's film will be based on 'Microserfs', a book about misfit Seattle-based Microsoft programmers, to which they have just acquired the film rights.

Written by Douglas Coupland, the story is about a group of programmers who are slaves to Microsoft and try to "have a life" in the fast lane of high technology.

Financial details of the deal have not been disclosed while negotiations with Bill Gates to use the Microsoft name are not yet finalised.

At first many thought this was an April Fools joke, but if so, then many of the American magazineS have fallen for it hook, line and sinker.

AMSTRAD SELLS MOBILE PHONE BUSINESS

Amstrad has sold Dancall, its cellular mobile telephone arm, to Germany's Bosch Telecom for £92 million, four years after it rescued the business from receivership for £6.3 million.

Bosch dismissed claims that it had paid over the odds for the division saying Amstrad had "invested a huge amount of money in R&D. It had an impressive line-up of products at Cebit last month. We do not have that level of expertise," said a Bosch spokesperson.

Since the acquisition, Amstrad had pumped £10 million into Dancall and the sale price shows nearly six times return on investment.

Amstrad chairman Alan Sugar said Dancall is an example of Amstrad's knack of "spotting profitable sectors, product innovation and directing good management to develop and market those innovations." However Sugar said shareholders had not appreciated Dancall's potential), "principally due to the lack of profits since we acquired the company". In the year to June Dancall lost £6.8 million on sales of £100 million.

Bosch Telecom is Germany's third largest telecomm products company and is owned by Robert Bosch, the power tools to automotive components company. The Bosch spokesperson said the deal will give Bosch access to GSM technology and provides Dancall with the distribution channel and brand awareness it has been lacking.

Bosch will retain Dancall's 600-strong employees, the majority of whom are based in Denmark.

NEW PENTIUM COMING

Microprocessor giant Intel have annoounced their plans for 1997 and this looks set to include a new version of their market leading Pentium processor.

At a very flash and glitzy meeting for journalists, held at one of Intel's main research and development sites in California on April 1st, details of the new chip were unveiled. One of the first details to be released was that Intel have purchased the rights to the SAM ASIC from West Coast to help them add more user friendly graphics and other features to the new Pentium.

More details as soon as we have them.

YOUR NEWS HERE...

Come on readers, we need your news. Anything related to computers which you think will interest other SAM and Spectrum owners. Just jot it down on a piece of paper, add your name and membership number, and send it off to us at the usual address. Please mark the envelope 'News' so that we can give it the priority it deserves.

Remember, you get three months extra subscription for every news item we print, so don't rely on others to send in an item you have seen - send it off yourself and earn our thanks as well.

The Editor Speaks

This months issue is slightly smaller than usual because we have had a lot of problems this month. First, as you already know, last months issue was very late - sorry. Then, sadly, Jenny's mother-in-law passed away. She had been very ill for some time, but of course it was still a blow when it happened. With the preparations for the Spring '97 Gloucester Show taking up time I'm sorry to say I have not been able to get the usual 40 pages together by the printing deadline. However, we have packed a lot in.

May I give particular thanks to John Wase for the magnificent effort he has made in getting Short Spot done this month. What with splitting his time between caring for Lorrie, loads of extra work for the university, trying to keep his garden from turning into a jungle, and the never ending workload he gets at this time of year as his students approach exam time - it is a wonder he can find time for Short Spot at all. Nevertheless, knowing I was under such pressure myself, he managed to get together more pages than expected (which stops this issue being even smaller). Thanks John, you are a life-saver. However, readers, this has left John short of material, so could you all do me a favour and send him a few little items so he can restock his files and carry on his much appreciated efforts in the months to come.

Last month I hinted at something new on the SAM development front. This of course has led to lots of rumours going round that the SAM Elite is being dropped - Wrong - no new SAM (well not for a few years anyway.

As I said last time, the idea is to produce some new add-ons for the machine to expand its 'usability'. Stage one of the project is a board containing battery-backed SRAM which will allow the operating system to become 'soft' so changes can be made to the ROM area (bug fixes, new features etc.) without the need to constantly blow EPROMs every five minutes. machine-code programmers are therefore needed to help work out what the ROM/DOS is doing (with a little help from the original source code) so we can then work out the changes required. So, if you think this sounds like the sort of project you would like to be involved in, give me a ring (evenings are best) and I will explain a little more.

There are some other add-ons being looked at but if you have any ideas of what you would like to see produced, why not drop us a line and we will print your letters in a future issue - you never know, your idea could just get some people thinking and then, who knows?

We are about to start work on a new issue of The ***FORMAT*** Spectrum & SAM Resouce Directory which we will print later this year. If you know of any company that is still producing products (or providing services) that will interest Spectrum/SAM owners then please let us know so we can include them.

By the way - don't miss next months ***FORMAT***, we have something special planned to mark what is the 10th Anniversary of the formation of **INDUG**.

And finally, Jenny and I look forward to seeing everyone at the show on Saturday the 19th.

Until next month.

Bob Brenchley, Editor.

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For those of you coming south on the M5 then Junction 12 is not available southbound so it is easier to continue to exit 13 and then turn north onto the A38 - this only adds about 5 miles to the journey and avoids the traffic around Gloucester. The alternative is to exit at junction 11 (the A40 exit) and follow signs for Gloucester, however, as it is a Saturday this is not the route we would recommend.

By Rail or Coach: Both the railway and coach stations are in the centre of Gloucester - almost next to each other. Buses run from the coach station to Quedgeley every 15 minutes (about a 10 minute journey. Ask the driver for Tesco's, he will know where you need to get off.

DON'T MISS IT - DON'T MISS IT

SHORT • SPOT

YOUR HINTS, TIPS AND PROGRAMMING IDEAS

Edited By:- John Wase.

April. Season of showers. And so it has been whenever I've had no energy and it's been time to do the lawn. Of course, now that it really *wants* cutting, it's dry as a bone, the sun's shining furiously and you can *hear* the grass growing too long for the mower, Bob's bawling for ***Short Spot***; he wants it tomorrow! Woe is me!

So here we are again, folks, and let's make a quick start with a note about programming on the Spectrum from Mr E. G. Baumann of Cowies Hill, South Africa. Mr Baumann has faithfully supplied 'funnies' for many years for April fool's day, and it is therefore fitting that a serious piece of neat programming from him should take pride of place - as a sop, for he is then asking readers for information.

It is often useful to insert a line in colour to make it stand out in the listing, and the way to do this is well documented and well understood by most Basic programmers. What is less well known is that it is possible to put only the line number in colour, so that this will stand out at the start of a line and enable one to pick it out. This is particularly useful if the line, for instance, contains numbers here and there, so that the second or third lines also begin with figures, and the whole thing looks like several separate lines, and is confusing to the eye. To have the occasional line number in colour here and there is therefore a useful trick which at first seems impossible, but there is a way to do it.

First pull down the previous line for editing, and run the cursor to the end. Press CAPS/SHIFT + SYMBOL/SHIFT and then 4 (in this case, so that you get green). When the line is returned, it will be found that all the following lines will be green. Then pull down the next line for editing. The cursor will be in the right place; i.e. to the right of the desired line number.

Press CAPS/SHIFT + SYMBOL/SHIFT and then 7 (to get back to normal) and return the line.

In the same way, a line number can be made BRIGHT or to FLASH, if preferred, and then, of course, back to normal again. The key strokes are:-

For BRIGHT:-

C/SHIFT+SYM/SHIFT and then 9

C/SHIFT+SYM/SHIFT and then 8

For FLASH:-

C/SHIFT+SYM/SHIFT and then C/SHIFT+9

C/SHIFT+SYM/SHIFT and then C/SHIFT +8

So now you know.

And now an interesting point in which Mr Baumann (and I) would like some feedback from our good readers. (The bad ones can fax me a few interesting Spectrum and SAM jokes to fill up the column)! Sorry: back to business, Wase. To reset his ageing Spectrum, Mr Baumann uses PRINT USR 0, which, he feels is a soft reset, and therefore kinder to the computer than merely switching

off. The finger movements are also efficient. Also, before switching off, he always has always felt it better to reset the computer first by using this method. Mr. Baumann wants to know if doing this really *does* make a difference to the life of the computer, or is this belief unwarranted? Your comments and recommendations, please, to ***Short Spot***. Many thanks, Mr Baumann.

Next, a whole raft of bits and pieces from our readers on 'Colour Weaver'. It seems that a number of us are anxious to get SAM to produce the old Tartan, if the interest is anything to go by. A number of readers, including Dave Marriott of Long Eaton, Nottingham, and Graham Parkyn of Grampound, Truro, have commented on the problem of turning CAPS-LOCK on and off on SAM, but Graham has added to his reply as follows.

"The problem which Mr Hunter seems to be having with the POKE 23658,8 in the Spectrum version of the program, and the possibility of transferring this to the SAM, quite surprised me, as I have been using this POKE for years. Still, this is what ***FORMAT*** is all about isn't it! (Good man, this Graham Parkyn - JW). One man's problem is another man's answer!

Address 23658 is the location of a System Variable: POKE 23658,8 produces a CAPS-LOCK ON, while POKE 23658,0 produces a CAPS-LOCK OFF. With the SAM, POKE SVAR 618,8 produces CAPS-LOCK ON: POKE SVAR 618,0 produces CAPS-LOCK OFF. However, I have found that SAM will happily accept POKE 23658,8 and POKE 23658,0.

Using this information, Graham also writes that he has found this system variable useful in avoiding the rather clumsy:-

```
10 PAUSE
20 LET A$=INKEY$
30 IF A$="Y" OR A$="y" THEN...
```

Instead, and more elegantly, use:-

```
10 PAUSE
15 POKE SVAR 618,8 (REM or POK
   E 23658,8)
20 LET A$=INKEY$
30 IF A$="Y" THEN...
```

Many thanks, Graham.

Other readers, for instance Dave Marriott, mention that line 5030 was intended to overwrite the graphics for characters 'A', 'B' etc., with user defined ones, and went on to POKE b with the required bit patterns. "If this is indeed the case, just substituting 'UDG' for 'USR' will do the same thing on SAM," says Dave, and thank you for your good wishes for Lorri.

J. Smith of Crossgates, Leeds, encloses a complete listing of a SAM colour weaver. He mentions that the principal program changes are the screen addresses and the graphic addresses for CHR$ 144 and CHR$ 145. There are also some minor changes to text, and the cursor graphic shape, and also one or two extra odd lines. The POKE 23658,8 simply becomes POKE SVAR 618,8 Caps Lock for SAM, which, as Mr Smith wryly remarks, "I am sure many other readers will have told you by now." They have indeed, Mr Smith.

I would have printed Mr Smith's program, which ran to more than two sides of A4 paper (have no fear; it's less in columns), but he sent only a listing, and no disc, and it would have taken for ever to type it in, and Bob wants this tomorrow, so many thanks Mr Smith - we have at least got the gist of this.

And, since it is roughly comparable, and here, on a disc, the listing of Geoff Bridges of Headington, Oxford, is therefore printed. Geoff, of course, mentions the dreaded POKE 23658,0 to

change case in both SAM and Spectrum, and, on the same subject, if I can digress a minute or two, so does Roy Burford of Norton, Stourbridge. Roy has organised his 'scrappy notes', as he puts it, into a little program, giving POKEs for the Spectrum which he finds useful, though he does not mention if these are also useful in SAM. How about a rather fuller program of useful POKEs, bewares and no-no's, readers, with their SAM equivalents? Be rather useful, wouldn't it! Anyway, here's Roy's awfully useful POKEs!

```
 1 REM Spectrum+ 128/48K usefu
   l RAM addresses.
 2 REM B.C.R.Burford 250397.
10 REM 23444   128K Renumber.
   Start line number
11 REM 23445   low and high by
   tes.
12 REM 23446   128K Renumber.
   Increment or step between
13 REM 23447   lines. Low and
   high bytes.
14 REM 23561   Delay before au
   to-repeat.
15 REM 23562   Speed of auto-r
   epeat. 0 disables.
16 REM 23609   Keyboard bleep.
17 REM 23611   Poke with 205 t
   o enable T & U UDG's in 128
   K. Initially contains 221(1
   28K)  204(48K).
18 REM 23658   FLAGS2. POKE wi
   th 0 for lower case keyboar
   d(CAPS LOCK off), 8 for upp
   er case keyboard(CAPS LOCK
   on).
19 REM 23672   FRAMES is a thr
   ee-byte variable incremente
   d
20 REM 23673   by 1 every 1/50
   s. To get
21 REM 23674   50ths second, t
   =PEEK23672+256xPEEK23673+65
   536xPEEK23674. In case a by
   te is about to change, it i
   s best to take two readings
    and accept the higher one.
22 REM 23677   Contains last
   x  coordinate plotted.
23 REM 23678   Contains last
   y  coordinate plotted.
```

Many thanks, Roy, and we'll come back to you later, but now we'll return to Geoff Bridges, who now deals with the user defined graphics, as already mentioned, as UDG CHR$ n for SAM, where n is a number from 144 to 164. Line 5030 then becomes:-

```
5030 FOR b=UDG CHR$ 144 TO UDG
     CHR$ 144+15
```

and line 1700 should be:-

```
1700 PRINT PEN 7; AT 8,0;"Q"; A
     T 10,0; CHR$ 145; AT 12,0;
     "QUIT"
```

An important point in Spectrum/SAM conversions is also made by Geoff over the POKE in line 3030. The address used (23210) is in the attribute file on the Spectrum, but SAM uses this area for its system variables, so it's certainly not a good idea to POKE and rummage round in this area, willy-nilly! As I mentioned a couple of inches earlier, I really think a good long compendium of bits and pieces with all this information would be invaluable to converters and users, so come on, folks!

Geoff changed line 3030 as follows:-

```
3030 LET s+(1+(IN 252 BAND 31))
     *16384: LET s=s+6826-5*d:
     LET m=s-672: LET f=s-651:
     LET x=-32
```

Here is the complete listing.

```
  10 MODE 1
  50 start
  60 menu
1000 DEF PROC menu
1005 DO
1010 CLS : RESTORE 8000: PRINT
     PAPER 0; PEN 7; AT 8,6;"KE
     Y A for AUTO"
1020 PRINT PAPER 0; PEN 7; AT 1
     0,10;"M for MANUAL"; AT 12
     ,10;"X for EXIT"
1030 POKE 23658,8: PAUSE
1040 LET choice=CODE PENEY$
```

```
1050 IF choice=65: CLS : auto_
1055 ELSE IF choice=77 : CLS :m
     anual
1060 IF choice=88 THEN STOP
1070 END IF
1080 LOOP
1090 END PROC
1650 DEF PROC auto_
1660 FOR t =1 TO 30
1670 READ n$
1680 PRINT #0; AT 1,0;s$;s$;s$;
     s$
1690 mask
1700 PRINT PEN 7; AT 8,0;"Q"; A
     T 10,0;CHR$ 145; AT 12,0;"
     QUIT"
1710 PRINT #0; PEN 7; AT 1,INT
     ((31-LEN n$)/2);n$
1720 FOR n=0 TO 21:abort
1730 READ c: LET col=CODE (STR$
      c)-48
1740 weave
1750 NEXT n: PAUSE 100: NEXT t
1760 CLS
1765 END PROC
1770 DEF PROC manual
1780 prompt
1790 cursor
1800 mask
1810 FOR n=0 TO 21
1820 PRINT PAPER 0; PEN 7; FLAS
     H 1; AT 18,1;"ANY KEY"; FL
     ASH 0
1830 PRINT PAPER 0; PEN 7; AT 2
     0,2;("(0-7)") AND n<27
1840 PAUSE
1850 PRINT AT 18,1;s$; AT 20,2;
     s$
1860 PRINT #0; AT 1,0;CHR$ 32
1870 LET col=CODE PENEY$-48
1880 IF col<0 OR col>7 THEN GOT
     O 1820
1890 weave
1900 NEXT n
1910 PAUSE 200
1920 CLS
1930 END PROC
2000 DEF PROC mask
2010 LET d=(1 AND choice=65)+(0
      AND choice=77)
2020 FOR n=0 TO 21
2030 PRINT AT n,10-5*d;g$;g$
2040 NEXT n
2050 END PROC
3000 DEF PROC weave
3010 IF choice=77 THEN cursor
3020 IF col=0 THEN GOTO 3100
3030 LET s=(1+(IN 252 BAND 31))
     *16384: LET S=S+6826-5*D:
     LET m=s-672: LET f=s-651:
     LET x=-32
3040 FOR b=s TO m STEP x
3050 POKE b+n,PEEK (b+n)+col
3060 NEXT b
3070 FOR b= m TO f
3080 POKE b+32*(21-n), PEEK (b+
     32*(21-n))+8*col
3090 NEXT b
3100 END PROC
4000 DEF PROC prompt
4010 PRINT PAPER 0; PEN 7; AT 1
     ,0;"BLACK"; TAB 8;"0"; AT
     3,0;"BLUE"; TAB 8;"1"
4020 PRINT PAPER 0; PEN 7; AT 5
     ,0;"RED"; TAB 8;"2"; AT 7,
     0;"MAGENTA"; TAB 8;"3"
4030 PRINT PAPER 0; PEN 7; AT 9
     ,0;"GREEN"; TAB 8;"4"; AT
     11,0;"CYAN"; TAB 8;"5"
4040 PRINT PAPER 0; PEN 7; AT 1
     3,0;"YELLOW"; TAB 8;"6"; A
     T 13,0;"WHITE"; TAB 8;"7"
4050 END PROC
5000 DEF PROC start
5010 RESTORE 5000: LET g$="": L
     ET s$=""
5020 BORDER 0: PAPER 0: PEN 0:
     CLS
5030 FOR b=UDG CHR$ 144 TO UDG
     CHR$ 144+15
5040 READ n: POKE b,n
5050 NEXT b
5060 DATA 51,102,204,153,51,102
     ,204,153,16,40,68,130,0,0,
     0,0
5070 LET f$=CHR$ 144: LET r$=CH
     R$ 32
5080 FOR j=1 TO 8
5090 LET g$=g$+f$: LET s$=s$+r$
5100 NEXT j
5110 FOR j=1 TO 3
5120 LET g$=g$+f$
5130 NEXT j
5140 END PROC
6000 DEF PROC abort
6010 LET quit=CODE PENEY$
6020 IF quit<>81 THEN GOTO 6030
6030 IF quit=81 THEN RUN
6040 END PROC
7000 DEF PROC cursor
```



```
7010 PRINT #0; AT 0,n+10; PEN 7
     ;CHR$ 32;CHR$ 145; AT 1,0;
     CHR$ 32
7020 END PROC
8000 DATA "BARCLAY",1,4,4,4,2,4
     ,4,4,1,1,1,4,1,1,1,4,4,4,2
     ,4,4,4
8010 DATA "BRODIE",2,0,2,2,2,0,
     0,6,0,0,2,0,0,6,0,0,2,2,2,
     0,2,2
8020 DATA "BRUCE",2,2,6,2,2,2,4
     ,2,4,4,2,4,4,2,4,2,2,2,7,2
     ,2,2
8030 DATA "CAMERON",2,6,2,2,2,4
     ,4,2,4,4,2,4,4,2,4,4,2,2,2
     ,6,2,2
8040 DATA "CAMPBELL OF BREADALB
     A",0,1,1,0,0,4,6,4,4,0,0
     ,4,4,6,4,4,0,0,1,1,0
8050 DATA "CAMPBELL OF CAWDOR",
     5,0,4,4,4,0,0,0,1,1,1,2,1,
     1,1,0,0,0,4,4,4,0
8060 DATA "COLQUHOUN",1,0,1,1,1
     ,0,0,0,7,4,4,4,2,4,4,4,7,0
     ,0,0,1,1
8070 DATA "CRAWFORD",2,7,2,2,2,
     4,4,2,4,4,2,4,4,2,4,4,2,2,
     2,7,2,7
8080 DATA "DAVIDSON",4,0,4,4,4,
     4,1,4,1,1,2,1,1,4,1,4,4,4,
     4,0,4,4
8090 DATA "DOUGLAS",1,1,7,1,1,1
     ,4,4,4,5,0,0,5,4,4,4,1,1,1
     ,7,1,1
8100 DATA "DUNBAR",2,0,2,2,2,2,0,
     0,4,4,4,2,4,4,4,0,0,2,2,2,
     0,2,0
8110 DATA "FARQUHARSON",6,4,4,4
     ,0,0,0,1,1,1,2,1,1,1,0,0,0
     ,4,4,4,6,4
8120 DATA "FRASER",7,2,2,2,2,2,4,
     4,2,1,1,2,1,1,2,4,4,2,2,2,
     2,7,2
8130 DATA "GRAHAM",1,0,1,1,0,0,
     4,5,4,4,4,5,4,0,0,1,1,0,1,
     1,0,0
8140 DATA "GUNN",4,2,4,4,4,4,0,0,
     4,0,0,4,0,0,4,0,0,4,4,4,2,
     4,4
8150 DATA "HAMILTON",2,2,7,2,2,
     2,1,1,2,1,1,2,1,1,2,2,2,7,
     2,2,2,1
8160 DATA "HENDERSON",4,0,0,6,0
     ,0,4,0,4,4,4,4,4,4,1,4,1,1
     ,7,1,1,4
8170 DATA "KEITH",4,0,4,4,4,4,1,1
     ,0,0,1,1,0,0,1,1,4,4,4,0,4
     ,4,4
8180 DATA "LAMONT",4,7,4,4,4,4,
     0,0,0,1,0,1,0,1,1,1,1,1,0,
     1,0,1
8190 DATA "MACARTHER",4,6,4,4,4,4
     ,0,0,4,4,0,0,0,0,4,4,0,0,4
     ,4,4,6,4
8200 DATA "MACDONALD OF CLANRAN
     ALD",4,2,4,2,4,4,4,7,0,0,0
     ,2,1,1,1,2,1,2,1,1,2,1
8210 DATA "MACDONALD OF SLEAT",
     2,4,2,4,4,4,2,4,2,2,2,2,2,
     2,4,2,4,4,4,2,4,2
8220 DATA "MACDUFF",2,1,1,0,0,4
     ,4,2,2,0,2,2,0,2,2,4,4,0,0
     ,1,1,2
8230 DATA "MACFIE",2,7,2,2,2,2,
     4,2,4,4,4,4,4,4,2,4,2,2,2,
     2,6,2
8240 DATA "MACGREGOR",2,2,2,2,2
     ,4,4,4,2,4,7,4,2,4,4,4,2,2
     ,2,2,2,2
8250 DATA "MACINTYRE",4,7,4,4,4
     ,1,1,2,1,1,4,1,1,2,1,1,4,4
     ,4,7,4,4
8260 DATA "MACLEOD",2,6,6,6,6,0
     ,0,0,6,0,0,0,6,0,0,0,6,6,6
     ,6,2,6
8270 DATA "MACQUEEN",6,0,0,0,0,
     2,2,0,2,2,0,2,2,0,2,2,0,0,
     0,0,6,0
8280 DATA "MORRISON",4,0,0,0,0,
     4,1,1,1,1,2,1,1,1,1,4,0,0,
     0,0,4,4
8290 DATA "WALLIACE",2,0,2,2,2,
     2,0,0,0,0,6,0,0,0,0,2,2,2,
     2,0,2,2
15000 LET L=8000
15010 DO
15015 LET A$=STR$ L+"DATA"
15020 INPUT "ENTER CLAN"; C$: LE
      T A$=A$+CHR$ 34+C$+CHR$ 34
      +","
15030 FOR X=1 TO 22: PRINT AT 0,
      0;A$: PRINT #1; AT 0,0; "E
      NTER NUMBER": GET C: LET A
      $=A$+STR$ C+","
15040 NEXT X
15050 KEYIN A$( TO LEN A$-1)
15060 LET L=L+10
15070 CLS
15080 LOOP WHILE L<8300
15090 STOP
```

** Visual Personal Banking System **

The **PBS** has become **Jet** propelled!

Yes, the **PBS** from its humble beginnings in 1981 as a ZX80 program to handle your finances has moved on to new heights...

The all new PC version has now grown **Windows (3.01, 3.11 or 95)** and stores all your transactions in a database managed by the **Microsoft Jet engine**. So not only do you have a simple and friendly user interface but you have speedy operation and **almost unlimited number of accounts** and transactions. *A boon for keeping a rolling 22 months or more of detailed records for the tax man!*

Many restrictions, such as the previous limit of 16 characters for a transaction narrative, have gone. **Dates are now millennium compatible** to take you into the 21st century without fuss.

We have also managed to implement **standing order transfers** between accounts in addition to the existing account transfer facility. The standing order transfers will even process any other standing orders due in the accounts affected. The **Visual PBS** now processes all your accounts, both personal and business, simultaneously so all transactions are applied immediately and your finances are always up to date, which is more than you can say for your bank statement.

Remember the **PBS** handles all standing orders and direct debits/credits **for any frequency automatically** (including daily, weekly, lunar monthly, in addition to monthly, quarterly, six monthly and annually) and for a set number of payments. Coupled with **forward projections**, easy **bank reconciliation**, **search** and **flexible enquiry** facilities with full analysis, the **PBS** puts you firmly in control of your money.

Hilton are inviting selected **Format readers** and existing **PBS clients** to take part in the beta testing of the first release of the **Visual PBS**. We will supply this version for **just £15** instead of the planned release price of £24.95 for the full version. All we ask is for you to use the beta copy and provide us with valuable feedback. Applicants will be eligible to receive the **full version** in due course at no extra cost.

Be one of the first to experience the new **Visual PBS** and order your beta copy now. You'll wonder how you ever managed without it.

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or Telephone 01483 826375 and pay on receipt of order.
All our software comes with our full money back guarantee and full after sale support.

Geoff also writes about the data lines in the program, for entering these is pretty tedious and one is prone to errors. This is a little program Geoff wrote; not very exciting, but it does remove some of the tedium!

```
15000 LET L=8000
15010 DO
15015 LET A$=STR$ L+"DATA"
15020 INPUT "ENTER CLAN"; C$: LE
      T A$=A$ +CHR$ 34+C$+CHR$ 3
      4+","
15030 FOR X=1 TO 22: PRINT AT 0,
      0;A$: PRINT#1; AT 0,0; "EN
      TER NUMBER"; GET C: LET A$
      =A$+STR$ C+","
15040 NEXT X
15050 KEYIN A$(    TO LEN A$-1)
15060 LET L=L+10
15070 CLS
15080 LOOP WHILE L<8300
15090 STOP
```

The start data line number is entered in line 15000 and a line greater than the last line is entered in line 15080. The data is added to A$ as the program progresses, with commas added between the data items automatically. As single digit numbers only were needed in this case, the GET command was sufficient in line 15030, but if larger numbers were necessary, then this could be changed to INPUT. Lines 15020 and 15030 can be altered to suit different types of data input as necessary.

Many thanks, Geoff.

Now back to Roy Burford. Roy writes onca again about the kaleidoscope. This is rather interesting: last weekend, while away with Lorri in between bouts of sickness, we were able to look at a kaleidoscope, and I made an important discovery. This, folks, is not one toy. No, no: Wase and his readers have, as usual been fooled! The gadget I was used to was triangular in cross-section, and the pattern was made by shaking snippets of metallised coloured foil. The gadget I looked at on holiday was round, the light came through the transparent base on which was painted colored geometrical shapes, and you altered the pattern by turning the base round: differing patterns of colours were somehow produced. A horse of quite a different colour from the one I was used to. (For the geographically minded, this toy came from Saks, High Street, Bangor, Gwynedd, but I won't hold it against them)! So we must be rather careful about what we're writing! Anyway, Roy has sidestepped all this nonsense by mentioning that the high resolution kaleidoscope on the Spectrum suffers from colour-clash, which, of itself, causes some loss of symmetry. Spkaleidos uses character graphics in the form of an inverse space. Have a look at it and the display it gives. As Roy puts it; "A notchy display, but colourwise clean."

```
  1 REM Space character kaleido
    scope.
  2 REM On ZX Spectrum+ 128K by
    B.C.R.Burford 070397.
 10 LET xc=15: LET yc=11: LET r
    s=yc-1: LET d=PI/180
 20 PRINT #0; AT 1,1;"Kaleidosc
    ope  Any key to exit:"
 30 FOR a=0 TO 2*PI STEP .1
 40 IF INKEY$<>"" THEN INK 0: S
    TOP
 50 PRINT INK 0; AT INT (rs*SIN
    a+1/2)+yc,INT (rs*COS a+1
    /2)+xc;CHR$ 143
 60 NEXT a
 70 FOR n=0 TO RND*39+10: LET r
    1=RND*(rs-1): LET o=RND*60
    : INK RND*4+2
 75 IF INKEY$<>"" THEN INK 0: S
    TOP
 80 PRINT AT INT (r1*SIN (o*d)+
    1/2)+yc,INT (r1*COS (o*d)+
    1/2)+xc;CHR$ 143
 90 PRINT AT INT (r1*SIN ((o+60
    )*d)+1/2)+yc,INT (r1*COS (
    (o+60)*d)+1/2)+xc;CHR$ 143
100 PRINT AT INT (r1*SIN ((o+12
    0)*d)+1/2)+yc,INT (r1*COS
    ((o+120)*d)+1/2)+xc;CHR$ 1
```

```
    43
110 PRINT AT INT (r1*SIN ((o+18
    0)*d)+1/2)+yc,INT (r1*COS
    ((o+180)*d)+1/2)+xc;CHR$ 1
    43
120 PRINT AT INT (r1*SIN ((o+24
    0)*d)+1/2)+yc,INT (r1*COS
    ((o+240)*d)+1/2)+xc;CHR$ 1
    43
130 PRINT AT INT (r1*SIN ((o+30
    0)*d)+1/2)+yc,INT (r1*COS
    ((o+300)*d)+1/2)+xc;CHR$ 1
    43
140 NEXT n
150 PRINT #0; AT 1,13; INK 2;"D
    one. Next coming:"
160 PAUSE 200: CLS : GOTO 20
```

Roy wrote also that he was off for easter week, looking after his granddaughters. Hope you have survived, Roy! Before going, he dashed off a quick note to me, mentioning that he had some bits and pieces that he could add to Mr Whittle's 'elecbill' program which could make it even better than it was. He emphasises that his comments are meant to be constructive, but as it stands, it could be more user-friendly, so his first is "Why not let the computer do the work?" So, it could do the decimal-point shift for us, as follows:-

```
110 PRINT AT 5,1;"Price per Uni
    t"
120 INPUT "ENTER p/unit ";up :
    LET ppu=up/100
130 PRINT AT 5,22;up;"p"
```

Mr Whittle's service charge also appears to be calculated daily, and would again be in pence, so the lines for this could be treated similarly. Minor changes of this sort will improve the user-friendliness, and reduce the possibility of errors when you enter the data.

Many thanks, Roy.

Roy also has had a go at Simon Turk's 'wordsearch cracker version 2', ***Short Spot*** 10,(2), 11, and reports that it works perfectly for him, finding any word or string horizontally, vertically, diagonally (forty-five degrees), forwards or backwards, and highlighting it, even down to one character. Roy wants to know if there is any deeper purpose in this exercise! Replies on a postcard, please....!

And that's really all that I've got for you this month. Please; I mean it; send me some more stuff. We can only print what's sent in, and I'm getting very short; without your snippets I can't put a column together. Please send them to:-

John Wase,
Green Leys Cottage,
Bishampton,
Pershore,
Worcs,
WR10 2LX.

See you next month.

FORMAT

SAM REPAIR SERVICE

We are pleased to be able to offer readers an official, West Coast approved, repair service for SAM Coupé and SAM élite computers and add-ons.

PRICING Because every fault is different we can't guarantee a fixed rate. When we receive your machine it will be tested and, if it is going to cost more than £35 for the repair then we will contact you for authority to continue.

Pack your machine well (we will use your packing for its return). Please phone us on 01452-412572 for advice on dispatch (we can even arrange UK Mainland collection and overnight delivery for an extra £12.95). In many cases we can also give an estimate over the phone. All repairs returned by overnight carrier so tell us which days there will be someone in to sign for the parcel. Please quote your INDUG membership number and give a evening contact phone number.

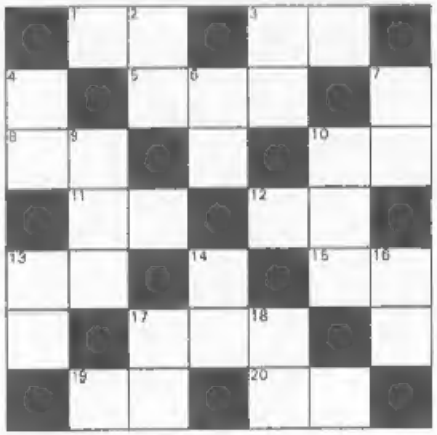
Send your machine to:-

Format (SAM Repairs),
34, Bourton Rd, Gloucester, GL4 0LE.

? PUZZLE SPOT ?

Looks like *? Puzzle Spot ?* is becoming a firm favourite with some of you. Something to stimulate the old gray cells when you are not in front of your computer.

Here is a new puzzle for this month.



Across
1. 15 across plus six
3. Seconds in a minute
5. Two times 3 down
6. 4 down plus seventy
10. 6 down minus thirteen
11. Months in eight years
12. 10 across plus four
13. 6 down times two
15. 13 down plus twenty-seven
17. 10 down plus 233
19. 16 down times five
20. Months in two years

Down
2. 7 down minus one
3. Months in five years
4. Digits 29 rearranged
6. 3 down minus thirty-five
7. Months in six years
9. 8 across times ten
10. Hours in seven days
13. 13 across plus four
14. 12 across times five
16. Millimetres in a centimetre
17. 16 down times four
18. Months in a year

Again the answer will appear next month. No prizes, its just for fun.

And here is the answer to last months.

9	5	5	■	8	9	1
8	■	2	8	8	■	2
8	1	9	■	1	2	0
■	0	■	■	■	1	■
4	0	8	■	1	8	8
3	■	7	1	9	■	1
6	7	2	■	1	3	6

If anyone has any ideas for other types of puzzles we would love to hear from you.

"You just squashed a person back there dear."

"Chris! Edna - what have you been feeding these goldfish?"

SAM élite 512

The advanced computer that retains a user friendly appeal which makes even the beginner feel right at home. An easy to learn Basic and disc operating system (no messing with slow tapes here) will allow you to do things you never thought possible before. Your SAM comes with a very easy to read manual and everything you need to get started - it even has some pretty impressive demo software for you to run, just to give you a few ideas for starters.
If you already own a Spectrum then this is the machine for you because you don't have to throw away all you have learnt so far - just be prepared to be amazed at the extra power and features.

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We are able to supply a small number of professionally reconditioned SAM Coupé computers. These have been fitted with a modern style disc drive, a version 3 ROM, new keyboard unit, and are supplied with new manuals and DOS system disc. They carry a full 90 day full return to base warranty. Because these are reconditioned machines there may be slight blemishes to case or base.

Has All The Features Of The SAM Elite, Except That There Is No Built-in Printer Port On The Coupé (see the SPI, under interfaces below)

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The original slot-in slim-line drives produced for the SAM Coupé are no longer made. If your existing drive is now showing signs of terminal decline perhaps it is time you gave your SAM a new lease of life by fitting a modern style (PC type) floppy drive.

In most cases we find the faults with old drives are mechanical (due to worn heads, stepper motor failure, etc.) In these cases you need an Internal Interface Type 1 to which you transfer the 1772 disc controller chip from your old drive - thus making the upgrade as cheap as possible..

If you want to fit a second drive (or first drive, if you don't have one or the 1772 on your old drive is faulty) then order a Type 2.

Both types are available in either kit form or ready assembled. For the kit you will need screwdriver, soldering iron, solder and a reasonable level of soldering skills. All you need for the assembled version is a screwdriver. Full fitting instructions are given and the only other thing you need is a standard PC type disc drive from your local supplier (cost about £20 to £25).

If you have any doubts about which type of interface you need, or any questions about the drive fitting in general, then please give the FORMAT hotline a ring on 01452-412572 and they will be pleased to help you.

	Kit Form	Assembled
Internal Disc Interface Type 1 (without 1772)	£19.95	£29.95
Internal Disc Interface Type 2 (including 1772)	£29.95	£39.95

INTERFACES

These interfaces work with both the SAM élite and the SAM Coupé unless otherwise stated.

SAM MOUSE SYSTEM. Interface, High Quality Mouse and the Software to drive it. The interface plugs into the mouse port on the back of SAM so you don't need a spare expansion socket. More and more software now works better if you use a mouse. ***Only £39.95***

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TWOUP. Allows two interfaces to be connected to SAM's expansion port at same time. ***Only £19.95***

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The HELP PAGE

Edited By:- Ray Bray.

I am sorry we have been without a Help Page for the past three months but unfortunately there has not been enough material from which to compose one. We have at last received a few queries to work on but I must admit that it has not been possible to find satisfactory answers to these so all we can do is publish the queries in the hope that our readers might be able to provide the answers.

The first query comes from Peter Allen of Horsell in Surrey. He states that he had a DISCiPLE plugged into the back of his Spectrum + when the voltage regulator in the DISCiPLE burnt out. Since then, when the Spectrum is switched on, he is able to type one command line in Basic and then horizontal coloured lines appear on various parts of the screen and the keyboard locks-up. He also had the DISCiPLE attached to his +2 and, when he switched it on, the border went to the loading mode, except with blue and cyan lines instead of blue and yellow. Now when he turns the +2 on, it works for about 20 seconds but after that it resets into 48 Basic mode and does so repeatedly until he re-sets. Have we any suggestions as to what the problem might be?

I'm afraid that this is one of those problems which cannot be answered without having access to the machines and the services of a technical expert to test the equipment. Your letter doesn't give the exact sequence of events but, if we are right in assuming that after the problem on the Spectrum+, you then tried the DISCiPLE on the +2 before discovering that the voltage regulator had failed and, the faults you describe above now occur without the DISCiPLE connected, it is likely that both machines have been damaged as a result of the regulator failure. The failed regulator probably produces a short to earth on the supply line from the Spectrum expansion connectors which has damaged a component in each computer.

Our next letter also raises a technical problem, this time concerning display interference with the SAM. Doug Casterton of Hucknall Notts purchased a Nokia Colour TV Model CT372 with a SCART socket to use with his SAM Coupe, which is fitted with two floppy discs and one hard drive. After the computer has warmed up there is interference on the screen and eventually, on a screen using white paper and black pen, the display is unreadable. This is made even worse (hot or cold) when the hard disc is running. Doug borrowed a SAM Elite with a single floppy to test this set-up and found that there was no interference (hot or cold) but, if the hard disc was connected and running, then the screen was unreadable.

Having carried out this test, he then reconnected the Coupe and inadvertantly inserted a disc into No.2 drive and found that the interference ceased. Furthermore, it made no difference if the disc was subsequently removed from the drive, the screen remained perfectly clear of interference, hard drive running

or not running. He found no way of eliminating the interference with the Elite when the hard drive was running, however, on borrowing a Fidelity TV and checking all the same conditions, no interference was experienced with either computer.

From the comprehensive tests carried out by Doug it is clear that the Nokia model he is using is particularly sensitive to interference, particularly from the hard disc. My immediate suggestion is to check that the chassis of the hard drive and the power unit are properly earthed to eliminate one possible source of the interference. However, the effect that the No.2 drive has in eliminating the interference is puzzling! The next query, which concerns Music Maestro, comes from H.Smart of Selkirk Scotland who has had a few problems with using the program on a Spectrum +2 with the PLUS D interface and a 3½" disc drive. Firstly he found that the only way he could make a back-up copy of the disc was by making a Snapshot copy, which is not very satisfactory. He also found that when he tried to save a file of music on the same disc as the main program it would not load again and sometimes the screen went blank and the computer hung-up. The only way to be able to save and reload the file was to save it onto an empty formatted disc, however, if more than one file was saved on the same disc it was not possible to load the second and subsequent files and, regardless of the filename entered, the first file on the disc was always loaded! Finally, he realises that there must be a limit to the number of bars of music one can enter but has been unable to find any reference in the manual as to what the limit might be. He has entered a long piece of music into the program, but when he tried to play it back an 'Out of Memory' error report appeared.

Unfortunately, I will have to appeal once again to our readers for a solution to this query as I also have been plagued with problems with my copy of Maestro. My computer hangs-up on trying to save; a 'Disc Error' message appears when trying to load; and a 'No Files Found' message appears when attempting to CAT! Can any of our readers provide a solution to Mr Smart's problems or mine?

Sam Quigg has written from Limavady in Northern Ireland with a question on IKON GRAPHIX and two items of news on suppliers of equipment. With regard to the IKON GRAPHIX, Sam has been trying for some time to convert the 128K program to run on the +3. So far he has managed to convert the Basic loader and load the machine code and, although the program runs, it won't load or save screen$, fonts etc. Well Sam, you don't say whether you are using tape or using PLUS D discs with the software needed for the +3 to read them. I suggest that you write to Mike Atkins (who deals with the +3), giving him as much information as you can plus a copy of your software if feasible. In the meantime, if any reader has made a successful conversion of this progam to work on the +3 could they please let us know?

In response to Archie Perry's query in the December 96 issue about using the PLUS D with Spectrum 2a, Sam says that he obtained a conversion kit from Brian Gaff around July of last year comprising a replacement ROM, a FIXIT adaptor for the expansion port and a comprehensive instruction sheet. In less than 30 minutes he had for all intents and purposes a Grey +2. So far he has found no problems and the PLUS D works perfectly in both 48K and 128K modes. His other equipment tip concerns a source of supply for Microdrive

cartridges. He purchased some cartridges last December from Bill Richardson of W.N.Richardson (EEC) Ltd. *(Editor's Note: As far as I know this company is no longer trading. Bob.)*

Finally, on reading the Letters section in the January issue I came across L.W.Simpson's letter about monitors, where he said that the only information he found on this subject in past issues of ***FORMAT*** was that contained in the Help Page in August 94. I know from personal experience how difficult it is to dig out items of information from past copies, even with the assistance of my own index system, so I am not surprised that Mr Simpson missed the piece in the Help Page of August '96. This covered two multisync monitors which will work with SAM, and indicated that it would also be worthwhile to try any VGA or SVGA monitor. However, this last option would probably depend upon having the co-operation of a friendly dealer in second-hand computer equipment.

That's all we have for this month. Please keep sending your problems/answers to the following addresses:-

Anything SAM or General Purpose:-
Ray Bray (***FORMAT*** Help Page),
Spring Cottage, Bourne Close,
Porton, Salisbury, Wilts, SP4 OLL.

Anything +3, CP/M:-
Mike Atkins (***FORMAT*** Help Page),
7O, Rudgwick Drive,
Bury, Lancashire, BL8 1YE.

Please remember that if you want any discs/printouts etc returned then you must include an SAE.

SMALL ADS

HELP! Can you sell or loan me the instruction manual for the DISCiPLE interface. Anything loaned returned promptly with your costs gladly and generously reimburse. J.Woodhead, 9, Unity Street, Hebden Bridge, Yorkshire, HX7 8HQ.

Spectrum +2a (black case) in original box, printer cable, Tasword 2, Machine code compiler, Pascal, C, 3D Construction kit and various games, £40. Phone Alan Tilley on 0370-666-297.

Spectrum +3 With multiface+3, Tasword 3 and Taspell 3 with all manuals, printer and cassette leads and a couple of games on disc. £30. Spectrum +2A, boxed with manual, lightgun and software. £25. PLUS D interface and disc drive with PSU, printer lead and software. £25. GTX5000 Spectrum modem with comms software £10. Contact Matthew Gallagher on 01622 746690 - evenings.

WANTED Video digitizer for the ZX Spectrum. Please write with details and price to: Anestis Koutsoudis, 64, Miaouli Street, Xanthi 67100, GREECE.

FOR SALE Brother M1109 9pin dot matrix printer. Serial/Parallel ports. Epson FX80 compatible (driver in Win.3.x) £50. UMC VESA Super I/O card + leads and driver disc. 2HD, 2FD, 2S, 1P, 1G. Need free VESA slot. £8. Please phone Matthew Compton on 0161-976-3628 (Manchester area).

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Loosely based on **Bomb Jack** (the game SAM owners have most requested over the years) As well as the normal one player game, T'n'T has gone one better by giving you ***TWO*** player action - competing against each other, in full glorious technicolour - at the *same* time. It even has a novel feature in a SAM game - a High Score Table, how many others have that?

Avoid the meanies, collect the bonus points. Jump, Hover, Fly - what more do you want???

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NEW ELITE NEW

The legendry game at last available on SAM disc Using the code of the Spectrum version, long thought the best after the original BBC version, this game is a must for everyone who loves action and adventure Full manuals, story book and packaging

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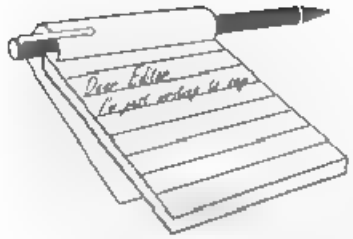

YOUR LETTERS

Dear Editor,

Thank you for the current ***FORMAT*** Vol.10 N°7, better late than never You mention IF...THEN...ELSE in your editorial. Whilst I do not have a SAM I am familiar with this Microsoft instruction from my TRS-80 days. Perhaps the following may help

Because of the binary operation, in a computer any single IF...THEN can have only two outcomes. Two changes can then be made at this Point, or, only one as required. In original and Sinclair Basic two changes were made using two lines of code, eg

```
50 IF a b THEN LET c=d· GOTO 7
   0
60 LET c=d/2: REM If a is not
   equal to b
70 Program continuation...
```

The same code is achieved on one line using IF...THEN ..ELSE as follows ·

```
50 IF a=b THEN c=d ELSE c=d/2
60 Program continuation...
```

Here, 'ELSE deals with the second alternative that a<>b so c=something else

LET is usually optional in a Basic using IF...THEN, ...ELSE but if this is not the case with SAM, pop LET in at the appropriate points. As far as I am aware, it is not obligatory to use IF THEN ELSE but memory space is saved when it is applicable

Yours sincerely, Roy Burford.

Thanks Roy, that is quite a good start for people, although of course there is a lot more which could be covered and hopefully someone will do a full article for us soon

One point I would comment on is your reference to the LET command True, in some versions of Basic it is optional (particularly those based on Microsoft Basic) but leaving it out often slows down programs. ***Ed.***

Dear Editor,

I wish to thank you for sending me the PLUS D and cable. I tried it out on three Spectrums but alas only the disc side worked I was able to boot it up and the disc operation side worked quite well but nothing from the printer side worked, so I took my printer to a computer shop in Stirchley. The gentleman was very obliging, he connected it to a Lap Top (Compaq) computer, typed in a sentence, and the printer printed it out. He did it twice more, once in large print and said the printer was OK. I then tried out my grand-daughters Alfacom small printer on my Spectrum and it worked very well So all in all I've tried most everything out but the printer side of the PLUS D is not working. Jenny I wish to thank you, Mr B.Brenchley and Mr John Wase for all the help they have so kindly given to me and for the splendid write ups in ***FORMAT,*** I am going to see if I can do some more programs, (copies) save them to tape on the off chance that Mr Brenchley may be able to find some way of fixing PLUS D's in the future. I am sending a few postage stamps enclosed to pay for the parcel you sent to me. I wish to thank you all once again What wonderful people you are

Thanking you,

Your sincerely, S.L.Round.

Mmmm. Strange that this one shows exactly the same fault as your old one. Sorry, but I still do not have a working Spectrum at the moment so I still have not been able to test things for you. *Ed.*

Dear Editor,

In Ken Elston's very interesting article 'The Calendar' ***FORMAT*** March Vol.10 N°7, he says that "Caesar also decreed that the year would start with the 1st of January, not the vernal equinox in late March"

The Treasury in Great Britain took no notice - and still doesn't. In September 1752, the Gregorian Calendar was adopted in the UK, with Wednesday 2nd September being followed by Thursday 14th September. At the same time, 1st January was made the beginning of the year - except for the Treasury, who wanted to stick to 25th March. But this would have made their financial year 1752-1753 11 days short, so they went forward 11 days from 25th March, arriving at 6th April - a date we Income Tax payers know well.

This seemed too short to make a disc out of it. I hope you don't mind.

Yours sincerely, Ettrick Thomson.

Bloody taxman.... Trust them to be behind the times. Still, thank you very much for the information, good to hear from you again. *Ed.*

Dear Editor,

I mentioned the SAM MIDI Sequencer in a letter to ***FORMAT***, a few months ago. In response, somebody rang me up to say that he had obtained the rights and could supply it. Unfortunately, I have managed to lose his name and address.

He also said that he had the rights to loads of other SAM and Spectrum software, and produced a magazine (paper or disc?) whose name I recognised but can also not remember. So I hope he is well-known to everybody except me. Can you recognise this mystery personality?

Please keep all comments on my IQ to yourself!

Yours sincerely, Guy Inchbald.

I am aware of the name you can't remember. The problem is that the person you indicate has, in the past, brought the SAM world into disrepute with his business activities. Although he now preports to have nothing to do with the running of his new company the evidence seems to be quite the opposite. I therefore feel that it is in the best interests of ***FORMAT*** readers that I do not give publicity either to him or to any company he is associated with. *Ed.*

Dear Editor,

I have had to give up with my Spectrum +3 because it was banged when my grand-children were discussing who's turn it was at Pac Man, and now it doesn't work.

I have replaced it with a Pentium 133 PC. I really miss my friendly Speccy so need all the help I can get. Keep up the high standards.

Yours sincerely, Maureen Ellis.

Quite a leap there Maureen, from +3 to Pentium. Still, we will do everything we can to support you. In the meantime, if you are really missing your Spectrum then send off for a copy of the Z80 Emulator from B.G.Services - that will allow you to enjoy all the Spectrum's user-friendly features on your PC. *Ed.*

Dear Editor,

I wonder if the following will interest you to include perhaps in News On 4 or elsewhere in a future edition of ***FORMAT***, it is an extract from a letter from SinTech, Thomas Eberle, Gastacker Strasse, 70794 Filderstadt, Germany.

that I have received.

"We have floppy-drives for the PLUS D, priced at 65.00 DM, about £27.00, also cables to connect two drives 10.00DM (£4.00), or a complete Power-set for two drives with all cables for 45.00DM (£19.00)," I am unsure about an interface but it may well be worth enquiring.

SinTech, as no doubt you already know, supply software and some hardware for the Spectrum (+3, Tape, PLUS D/DISCiPLE, Microdrive and even Wafadrive), software being supplied through The Trading Post of Shifnal, Shropshire, 01952 462135.

Yours sincerely, Deryck Morris.

There is supposed to be a new disc interface they are marketing for an East European group - however, as yet we have been unable to get one for review.

I don't know if the drives they mention are cased or not, if they are its a good price, if not then it is a bit steep. *Ed.*

Dear Editor,

Please find enclosed the renewal form for another 24 months subscription which should start again in March 1997 according to my records.

I received my first issue of ***FORMAT*** in March 1995 Vol.8 N°7 which means my membership should end in February 1997 and not in January 1997 stated in your letter. Please let me know if this is correct.

How much do I have to pay for the three FORMAT PC issues I last ordered as I forgot to copy the subscription form you sent me?

I have managed to find some technical stuff concerning the 128K Speccy soundchip.

Address port. 65533 Data port. 49149

a = byte for address port, b = data port values

a = 0 find pitch ch1, b = 0-15
a = 1 coarse pitch ch1, b = 0-255
a = 2 fine pitch ch2, b = 0-15
a = 3 coarse pitch ch2, b = 0-255
a = 4 fine pitch ch3, b = 0-15
a = 5 coarse pitch ch3, b = 0-255
a = 6 aynoisepitch, b = 0-31
a = 7 aymixer, b = 0-63
a = 8 channel 1 volume, b = 0-15, 16 or > means envelope
a = 9 channel 2 volume, b = 0-15, 16 or > means envelope
a = 10 channel 3 volume, b = 0-15, s16 or > means envelope
a = 11 envelope length1, b = 0-255 (coarse)
a = 12 envelope length2, b = 0-255 (finepitch)
a = 13 envelope shape, b = 0,4,8-15

An envelope can be used on any of the three channels.

I am gonna sign off now.

Yours sincerely Martijn Groen.

Because you sent £30 when you first subscribed in 1995 (instead of the £28 required), I gave you 25 months instead of 24 so you would have started with an expiry date of 0297. You then requested the first 3 issues of FORMAT PC as a result of our mailshot and so I deducted one month as each one went out, as explained on the form we sent to you.

If you had not sent in your letter with another two years subs you would have ended up (after the third FORMAT PC had been sent to you) with an expiry date of 1196. But, as you sent another £30 I've updated you again by 25 months so you now have an expiry date of 1298...confused. yeh so am I! *Jenny.*

Hi Martijn, thanks for the 128K sound chip info. As to your membership, this is how it works. The expiry date on the label is, in your case, 1298. This means you expired with the January'99 issue.

What happens is that at the end of the month we do an update run on the computer, print out all the labels for the monthly post-out and then terminate anyone who has not renewed. So, the labels to send you the last issue of your

membership are already printed by the time the termination run is done - that is why the expiry date is one month less than the cover date of the magazine. ***Ed.***

Dear Editor,

I am having difficulties in obtaining software programe which operate Midi. I would be extremely grateful if you could send me a list of programs on disc if you have any. I would also be interested in any other information that you have on Midi. I am currently using a SAM Coupé (Rom 3 256K) machine, which hopefully is adequate. Also, is it possible to connect a standard PC or Amiga mouse to the SAM.

If so any info on that would be welcomed. Thank you for your help.

Yours sincerely, Edward Williams.

Contact SAM PD (their address is in the Resource Directory) they have some midi software available.

The SAM requires a mouse interface which is available (see the West Coast advert) it is supplied with an Atari compatible mouse. ***Ed.***

Dear Editor,

I'm sorry I cannot contain myself any longer, I have to speak my mind in the hope that you will publish this letter and may be I will get a few answers from you along with many other members who feel the same way as I do, or is it just me that has been so neglected?

I have been a subscriber to ***FORMAT*** for several years now and have enjoyed every issue that has been published.

But I must complain bitterly at the way that West Coast or/and you, ***FORMAT***, have treated every order I've sent in for hardware so far.

When my Spectrum packed up a couple of years ago I decided to pluck up the courage and go for SAM, a machine which has proved to be quite a delight.

So, a mouse was needed. I had purchased *Driver* from Revelation and received that quite quickly. The cheque was sent and cashed, but then I had to wait another three months to get my mouse system. Telephone calls were made and I understood the delay was in finding compatible mice, so I reacted with sympathy and patience.

Now for a two up. The order sent in, the cheque cashed, and I've been waiting since November.

Please, are you and West Coast ganging up on me? Because the way I feel at the moment I am on the verge of packing it all in and doing what everyone else is doing and buying a PC!

Yours, very frustrated and upset!

Yours sincerely, Ms B.Cooper.

Sorry to hear you are upset, we do try to keep customers informed when there are delays but sometimes there just does not seem to be enough hours in the day to get everything done.

Yes there were major delays on the SAM Mouse Systems. This was caused by the difficulty in obtaining Atari compatible mice to go with the interface. There was a small batch of interfaces built last year which were modified to work with Amiga type mice but this will not be made standard until later this year when more mouse boards have to be ordered from the pcb company.

Stocks were found as soon as they could be and everything is now back to normal.

A similar thing with the TWO^{up}, one of the connectors is rather difficult to get hold of. With the upheaval of the move of production from South Wales I must admit there was a problem, but once again we are now back to normal. ***Ed.***

Letters may be shortened or edited to fit on these pages although we try to edit as little as possible.

This is YOUR letters page so it is up to you to fill it with interesting things. Come on, get writing, any subject even remotely related to computers. Just keep things as short as you can so we can fit in as many as possible each month. Please write clearly or type your letters. Send them to the address on page 3 or fax them to us on 01452 380890

SAM DISC INTEROGATOR

By:- Graham Burtenshaw.

This is a very useful utility program for SAM users, it first appeared on Enceladus issue 4 and is reproduced here by kind permission of Fred Publishing. If you are too lazy to type in this lot then Fred can supply copies of any of the Enceladus discs.

Full instructions for the program are contained in the listing and these also act as on-line help when the program is running.

Only one minor point to note when typing in the program, in several lines the characters ~ and | appear. There are, in real life, UDG characters which we cannot reproduce (easily) in a listing. It does not matter which character you assign the UDG to (they get set up in line 450 and 460). See the SAM manual for details of how to enter UDGs.

```
  5 CLEAR 39999
 10 DEF PROC echo a$
 20 LET a$=a$+STRING$(85," ")
 30 LET n=1
 40 LET m=n +84
 50 FOR f=m TO n STEP -1
 60 IF a$(f)=" " THEN GOTO 80
 70 NEXT f
 80 PRINT a$(n TO f)
 90 LET n=f+1
100 IF (n+84)>LEN a$ THEN GOTO
    120
110 GOTO 40
120 END PROC
130 ON ERROR GOSUB 1720
140 LET ad=40000,col=0
150 SCREEN 1: MODE 3: CLS #: C
    SIZE 6,8
160 POKE 23658,0
170 POKE DVAR 0,0
180 DEF PROC readd
190 LET AD=40000
200 FOR T=0 TO 4
210 PRINT AT 18,66;T
220 FOR N=1 TO 9 STEP 2
230 READ AT 1,T,N,AD+(512*(N-1
    ))+(5120*T)
240 NEXT N
250 FOR N=2 TO 10 STEP 2
260 READ AT 1,T,N,AD+(512*(N-1
    ))+(5120*T)
270 NEXT N
280 NEXT T
290 IF hamster THEN CLOSE #5:
    OPEN #5;"$": LET d$="": RE
    CORD TO d$: DIR #5;1;"akjn
    riuk3": RECORD STOP : IF P
    EEK DVAR 7<21 THEN LET fre
    =VAL d$(61 TO LEN d$): ELS
    E LET fre=VAL d$((7+INSTR(
    d$,"Bytes ")) TO (INSTR(d$
    ,"File")-4))
300 END PROC
310 DEF PROC writ: LET ad=4000
    0: FOR t=0 TO 4: PRINT AT
    18,66;t: FOR n=1 TO 9 STEP
     2: WRITE AT 1,t,n,ad+(512
    *(n-1))+(5120*t): NEXT n:
    FOR n=2 TO 10 STEP 2: WRIT
    E AT 1,t,n,ad+(512*(n-1))+
    (5120*t): NEXT n: NEXT t
320 END PROC
330 LET hamster=1
340 readd
350 CLS : PALETTE 2,29
360 PALETTE 1,68
370 PALETTE 3,32 LINE 8
380 PALETTE 2,44 LINE 6
390 PALETTE 2,6 LINE -16
400 RESTORE
410 DATA "","","","","SNAPSHOT
    ","","","","","","","","
    ","","BASIC","NUMERIC","S
    TRING","CODE","SCREEN"
420 DIM c$(20,10): FOR n=1 TO
    20: READ c$(n): NEXT n
```

```
430 PALETTE 1,113 LINE 10
440 PALETTE 2,6 LINE 12
450 POKE UDG "~",128,192,224,2
    40,248,252,254,255
460 POKE UDG "|",128,224,248,2
    54,248,224,128,0
470 PRINT AT 21,0; PAPER 2; PE
    N 0;"CURSORS - select file
    .   H - HIDE on/off.  P -
    PROTECT on/off.  C - Chang
    e type.     ~": PRINT #0; A
    T 0,0; PAPER 2; PEN 0;" S
    - sort    M - move   R - R
    ead DIR   W - write DIR  ~
      Free K-Bytes: " ;fre: PR
    INT #0; AT 1,0; PAPER 2; P
    EN 3;"  N - rename   A - S
    ector map    Q - Quit    I
     - help  ~          |"
480 LET Y=0,XX=0: FOR N=0 TO 2
    0480 STEP 256
490 PEN 3
500 LET A$="    "
510 IF MEM$(AD+N+1 TO AD+N+10)
    =STRING$(10,CHR$ 0) THEN G
    OTO 580
520 LET B=PEEK (AD+N)
530 LET h$="   "; LET h$(2)="|
    " AND NOT b
540 PRINT AT Y,XX; PEN 2;"0" A
    ND (N/256<9); PEN 2;N/256+
    1; PEN 2;h$;: PRINT  MEM$(
    AD+N+1 TO AD+N+10)
550 LET XX=XX+16*(Y=19),Y=Y+1-
    (20 *(Y=19))
560 PRINT
570 NEXT N
580 LET last=n/256
590 REM 66
600 LET y=0,x=5,n=0
610 DO
620 LET aa=ad+n*256
630 PRINT PEN 1; AT y,x;MEM$((
    ad+n*256)+1 TO (ad+n*256)+
    10)
640 LET nn=n,xx=x,yy=y
650 stuff
660 LET hamster=1
670 LET g$=INKEY$: IF g$=CHR$
    10 AND n<(last-1) THEN LET
     n=n+1,y=y+1: IF y>19 THEN
     LET y=0,x=x+16
675 IF g$="v" THEN GOTO colour
680 IF G$="z" THEN GOTO recove
    r
690 IF g$="i" THEN GOTO help
700 IF g$="q" THEN BOOT
710 IF g$="a" THEN GOTO map
720 IF g$="n" THEN GOTO renam
730 IF g$="s" THEN GOTO sort
740 IF g$="m" THEN GOTO mov
750 IF g$="r" THEN PALETTE : P
    RINT AT 17,66;"LOADING: ":
    readd: GOTO 350
760 IF g$="w" THEN PALETTE : P
    RINT AT 17,66;"SAVING: ":
    writ: GOTO 350
770 IF g$=CHR$ 11 AND n>0 THEN
     LET n=n-1,y=y-1: IF y<0 T
    HEN LET y=19,x=x-16
780 IF g$=CHR$ 9 AND n<(last-2
    0) THEN LET n=n+20,x=x+16
790 IF g$=CHR$ 8 AND x>10 THEN
     LET n=n-20,x=x-16
800 IF g$="h" THEN GOTO hid
810 IF g$="p" THEN GOTO pro
820 IF g$="c" THEN GOTO change
830 IF n<>nn THEN PRINT PEN 3;
     AT yy,xx;MEM$(aa+1 TO aa+
    10): ELSE GOTO 670
840 LOOP
841 LABEL colour: PRINT AT y,x
    ;: FOR q=1 TO 10: IF PEEK
    (aa+q)>31 AND PEEK (aa+q)<
    129 THEN PRINT PEN 1;CHR$
    PEEK (aa+q);: ELSE PRINT P
    EN 1;".";
842 NEXT q: PAUSE : PRINT AT y
    ,x;"          "; GOTO 840
850 DEF PROC stuff
860 PEN 1
870 LET type=(PEEK aa) BAND 63
880 IF type=0 THEN PRINT AT 0,
    66;"BLANK   ": GOTO 910
890 IF type>20 THEN PRINT AT 0
    ,66;"          ": GOTO 910
900 PRINT AT 0,66;c$(type);"
          "
910 WINDOW 66,84,1,13: CLS 1:
    WINDOW
920 IF type=16 THEN GOSUB basi
    c
930 IF type=17 OR type=18 THEN
     GOSUB dat
940 IF TYPE=19 THEN GOSUB cod
950 IF type=20 THEN PRINT AT 1
    ,66;"MODE: ";(PEEK (aa+221
    ))+1
960 LET st=(16384*(PEEK (aa+23
    6) BAND 31))+(DPEEK (aa+23
```



```
    7))-16384: PRINT AT 5,66;"
    START: ";st
970 LET le=(DPEEK (aa+240))+(1
    6384*(PEEK (aa+239))): PRI
    NT AT 6,66;"LENGTH: ";le
980 IF st=114688 AND le=24627
    THEN PRINT AT 2,66;"FLASH!
     FILE"
990 PRINT AT 8,66;"TRACK: ";PE
    EK (aa+13)
1000 PRINT AT 9,66;"SECTOR: ";P
    EEK (aa+14)
1010 PRINT AT 10,66;"SECTORS: "
    ;(256* PEEK (aa+11))+PEEK
    (aa+12)
1020 LET Bz=PEEK (Aa) : PRINT A
    T 12,66;"HIDDEN" AND (Bz>1
    27): PRINT AT 13,66;"PROTE
    CTED" AND ((Bz>63 AND Bz<1
    28) OR (Bz>192))
1030 PEN 3
1040 END PROC
1050 LABEL basic
1060 LET li=(DPEEK (aa+243))+(6
    5536*(PEEK (AA+242))): IF
    PEEK (aa+242)<>255 THEN PR
    INT AT 1,66;"LINE START: "
    ;li
1070 PRINT AT 3,66;"PROGRAM : "
    ;(DPEEK (aa+222))+(65536*(
    PEEK (aa+221)))
1080 RETURN
1090 LABEL cod
1100 LET li=(DPEEK (aa+243))+(6
    5536*(PEEK (aa+242))): IF
    li<>16777215 THEN PRINT AT
     1,66;"EXECUTE: ";li
1110 RETURN
1120 LABEL dat
1130 PRINT AT 2,66;MEM$(aa+222
    TO aa+231)
1140 RETURN
1150 LABEL hid
1160 LET bz$=BIN$ bz
1170 IF bz$(1)="0" THEN LET bz$
    (1)="1": ELSE LET bz$(1)="
    0"
1180 KEYIN " POKE aa,bin "+ bz$
1190 GOTO 840
1200 LABEL pro
1210 LET bz$=BIN$ bz
1220 IF bz$(2)="0" THEN LET bz$
    (2)="1": ELSE LET bz$(2)="
    0"
1230 KEYIN " POKE aa,bin "+ bz$
1240 GOTO 840
1250 LABEL change
1260 WINDOW 66,84,1,13: CLS 1:
    WINDOW
1270 PRINT AT 1,66;" 5: SNAPSHO
    T"; AT 2,66;"16: BASIC"; A
    T 3,66;"17: NUMERIC"; AT 4
    ,66;"18: STRING"; AT 5,66;
    "19: CODE"; AT 6,66;"20: S
    CREEN"; AT 7,66;" 0: ERASE
    "
1280 PRINT PEN 2; AT 9,66;"Plea
    se input a"; AT 10,66;"new
     file type"
1290 INPUT #2; AT 14,66; PEN 3;
    ty
1300 PRINT AT 14,66;"     "
1310 LET a1=PEEK aa
1320 POKE aa,ty
1330 IF NOT ty OR NOT (a1 BAND
    31) THEN GOTO 350
1340 PRINT AT 21,0; PAPER 2; PE
    N 0;"CURSORS - select file
    .   H - HIDE on/off.  P -
    PROTECT on/off.  C - Chang
    e type.     ~": PRINT #0; A
    T 0,0; PAPER 2; PEN 0;" S
    - sort    M - move   R - R
    ead DIR   W - write DIR  ~
      Free K-Bytes: " ;fre: PR
    INT #0; AT 1,0; PAPER 2; P
    EN 3;"  N - rename   A - S
    ector map    Q - Quit    I
     - help  ~          |"
1350 GOTO 840
1360 LABEL sort
1370 PRINT PEN 2; AT 17,66;"Lea
    ve "; PEN 3;MEM$( ad+1 TO
    ad+10); PEN 2; AT 18,66;"f
    irst position?": GET k$: I
    F k$="n" THEN LET c=ad: EL
    SE LET c=ad+256
1380 PRINT AT 17,66; PEN 2;"SOR
    TING :       "; AT 18,66;"
                 "
1390 LET las=ad+(256*(last-1))
1400 LET d=c
1410 LET a1=0
1420 POKE 65536,MEM$( d TO d+25
    5)
1430 FOR a=0 TO 9
1440 IF PEEK (d+1+a)<PEEK (d+25
    7+a) AND PEEK d THEN GOTO
    1500
1450 IF PEEK (d+1+a)>PEEK (d+25
```

```
7+a) AND PEEK (d+256) THEN
 GOTO 1470: ELSE IF NOT PE
EK d AND ( PEEK (d+256) OR
 ( NOT PEEK (d+256) AND PE
EK (d+257+a)<PEEK (d+1+a))
) THEN GOTO 1470: ELSE IF
NOT PEEK d AND (NOT PEEK (
d+256) AND PEEK (d+1+a)<PE
EK (d+257+a)) THEN GOTO 15
00
1460 NEXT a: GOTO 1500
1470 POKE d,MEM$( d+256 TO d+51
     1)
1480 POKE d+256,MEM$(65536 TO 6
     5536+255)
1490 LET al=al+1
1500 LET d=d+256
1510 IF d>=las THEN GOTO 1530
1520 GOTO 1420
1530 IF NOT al THEN CLS : GOTO
     350
1540 PRINT AT 18,70;al;" "
1550 GOTO 1400
1560 LABEL renam
1570 PRINT PEN 2; AT 14,65;MEM$
     (aa+1 TO aa+10)
1580 PRINT AT 16,65;"Please typ
     e new name"
1590 DIM f$(1,10): INPUT #2; AT
      18,65; PEN 1; LINE f$(1)
1600 POKE aa+1,f$(1)
1610 GOTO 350
1620 LABEL mov
1630 PRINT PEN 2; AT 15,66;"Inp
     ut file number"; AT 16,66;
     "to swap "
1640 INPUT #2; AT 18,66;nn
1650 IF nn<1 OR nn>last THEN PO
     W : GOTO 1640
1660 LET nn=nn-1
1670 POKE 65536,MEM$((ad+nn*256
     ) TO (255+(ad+nn*256)))
1680 POKE (ad+nn*256),MEM$(ad+n
     *256 TO (255+(ad+n*256)))
1690 POKE (ad+n*256),MEM$(65536
      TO 65536+255)
1700 CLS
1710 GOTO 350
1720 CSIZE 8,16
1730 ON ERROR GOSUB 1720
1740 IF error=87 THEN PRINT #0;
      AT 1,0;"
      INSERT DISC INTO DRIVE
                "
1750 IF error=104 THEN PRINT #0
     ; AT 1,0;"
      FLICK WRITE-PROTECT TAB
                "
1760 CSIZE 6,8: IF error=23 THE
     N RETURN
1770 IF error=85 OR error=86 TH
     EN RETURN
1780 POP : CSIZE 6,8: PAUSE : G
     OTO 350
1790 LABEL map
1800 LET sc=((IN 252 BAND 31)+1
     )*16384
1810 LET sc=sc+23652
1820 FOR q=0 TO 194 STEP 8
1830 LET sc=sc+1
1840 FOR qq=0 TO 8
1850 POKE sc+qq*128,(PEEK (aa+q
     +15+qq))
1860 NEXT qq
1870 NEXT q
1880 GOTO 840
1890 LABEL RECOVER
1900 LET hamster=0
1910 DIM v(42),vv(42)
1920 LET cr=0
1930 PRINT AT 17,66; PEN 2;"CHE
     CKING :   "
1940 ON ERROR GOSUB 1980
1950 readd
1960 ON ERROR GOSUB 1720
1970 GOTO 1990
1980 LET cr=cr+1,v(cr)=n,vv(cr)
     =t: RETURN
1990 PRINT AT 17,66; PEN 3;cr;"
      SECTORS DAMAGED"; AT 18,6
     6;"     ": PAUSE
2000 IF cr=0 THEN GOTO 350
2010 PRINT AT 18,66; PEN 2;"REP
     AIRING :   "
2020 POKE 65536,STRING$(255,CHR
     $ 0)+STRING$(255,CHR$ 0)
2025 POKE 65537,"RELION": POKE
     65537+256,"RELION"
2030 FOR n=1 TO cr
2040 WRITE AT 1,vv(n),v(n),6553
     6
2050 PRINT AT 17,66;cr-n
2060 NEXT n
2070 PRINT AT 17,66; PEN 3;cr*2
     ;" FILES LOST": PAUSE : GO
     TO 350
2080 LABEL help
2090 CLS #
2100 CSIZE 6,16
2110 PRINT "       THE RELION D
     ISC CATALOGUE INTERROGATOR
     "
2120 CSIZE 6,8
2125 PRINT AT 0,0;"************
     *****; AT 1,0;"************
     *******
2126 PRINT AT 0,62;"************
     ************; AT 1,61;"****
     ********************
2130 DATA 32,34,42,38,46,46,98,
     98,106,110,111
2140 DATA 93,85,89,83,81,29,23,
     27,25,19
2150 RESTORE 2130: FOR f=1 TO 1
     1: READ a: PALETTE 3,a LIN
     E 157+(f*1.5): NEXT f
2160 FOR f=1 TO 10: READ a: PAL
     ETTE 3,a LINE f*15.5: NEXT
      f
2170 WINDOW 0,84,3,21 : SCROLL
     CLEAR : PRINT
2180 echo "A rather more advanc
     ed version of the old disc
      examiner on ENCELADUS 1.
     What this program lets you
      do is to load in the dire
     ctory of a disc, fiddle ab
     out with it, and then save
      it back on to the disc, w
     ith the alterations in pla
     ce."
2190 echo "When the RDCI loaded
     , it immediately loaded in
      the directory of the disc
      that it was on, and then
     displayed it. All 80 files
      can be seen at once. ERAS
     ED files are shown by a |
     sign. Information about th
     e current file is shown in
      the corner of the screen;
      the current file is alter
     ed by using the cursor key
     s."
2200 PRINT
2205 PRINT  "You can then use t
     he following keys to manip
     ulate the current file :"
2210 echo "H - Hides a normal f
     ile, or unhides a hidden f
     ile.   P - Protects a norm
     al file or unprotects a pr
     otected file.  The RDCI di
     splays all files in a dire
     ctory, even if they are hi
     dden, erased etc. If a par
     ticular file contains cont
     rol codes so that it is in
     visible, make it the curre
     nt file and press V which
     will strip the codes."
2215 echo "N - Lets you rename
     a file. Sometimes you can'
     t do this in BASIC, if for
      example the file name is
     invisible, in which case y
     ou won't know what to rena
     me it from. You know what
     I mean. "
2220 PAUSE : PRINT : echo "C -
     Changes the file type. Usi
     ng this, you can ERASE fil
     es, UNERASE them or fiddle
      about with them, although
      this isn't really recomme
     nded. When you press C, yo
     u are given a list of the
     most common file types: th
     ere are more, but as they
     won't be of much use, they
      are not given. "
2225 PRINT : echo "S - sorts th
     e files into alphabetical
     order, with erased files b
     eing placed after normal f
     iles. Depending on how man
     y files are in the directo
     ry, and what sort of order
      they're already in, this
     process can range from bei
     ng very fast to very slow!
      For some reason which I c
     an't for the life of me un
     derstand, you may need to
     resave the first file - us
     ually SAMDOS."
2230 PRINT : echo "M - Moves fi
     les, or rather, swaps the
     current file with a second
      file, which you specify b
     y typing its number. "
2240 PRINT :echo "R - Loads in
     a new directory and displa
     ys it. W - Saves the curre
     nt directory. You must do
     this after you have made a
     ll relevant changes, and y
     ou must save it onto the s
     ame disc as it was loaded
     from - unless you want to
```

```
    severely confuse yourself
    later."
2245 PAUSE : PRINT
2250 echo "A - Produces an extr
    emely crude sector map in
    the bottom right corner of
     the screen (to the right
    of the | sign). The sector
    s used by the current file
     are shown in red, all oth
    ers in black. The map does
    n't pretend to be accurate
    , but it gives you a good
    idea of how much space eac
    h file uses, and how the s
    pace is distributed."
2260 PRINT :echo "Z - Repairs s
    ectors. (not mentioned on
    menu strip). Sometimes a d
    irectory sector gets corru
    pted. This means that whil
    e the actual file is still
     there, when you type DIR,
     the drive goes 'whirrr, c
    hugga-chugga-chugga grind'
     and you can't load it dir
    ectly. Typing Z asks the d
    rive to check the director
    y sectors. Any corrupted s
    ectors will be counted, an
    d then erased. Unfortunate
    ly this means that you sti
    ll can't load the file, bu
    t DIR will now work correc
    tly. You might be able to
    WRITE TO the sector with d
    ata on the file to get it
    back."
2270 PAUSE : PRINT
2280 echo "And there you go.":
    PAUSE : WINDOW : CLS #: GO
    TO 350
4999 STOP
5000 FOR n=22016 TO 22116: POKE
     n,0: NEXT n
```


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